

COASTER CONNECTION



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Coaster Brook Trout Stocking At Pictured Rocks National Lakeshore

Pictured Rocks National Lakeshore, along the southern shore of Lake Superior in Michigan's Upper Peninsula, began stocking coaster brook trout in 1997. In the mid-1990's fisheries biologists from U.S. Fish and Wildlife Service identified suitable habitat in several streams in the park. Fin clipped Tobin Harbor (Isle Royale) strain coasters have been stocked seven times in three streams since 1997 in partnership with Michigan Department of Natural Resources, U.S. Fish and Wildlife Service, and the Biology Department at Northern Michigan University. Beginning in 2003, thirteen members of the Fred Waara and Two-Hearted Chapters of Trout Unlimited have volunteered their time and strong backs to form bucket brigades, moving coasters from hatchery trucks to streams.

The most recent event occurred on April 29, 2004, when 7,500 yearling coasters were stocked in the Hurricane River. All had been fin clipped at the Genoa National Fish Hatchery in southwestern Wisconsin. Two hundred thirty-three yearling coasters were set aside for monitoring and

research purposes immediately prior to their release. Picnic tables were converted to laboratory tables, and graduate students from Northern Michigan University and their advisor, Dr. Jill B. K. Leonard, weighed, measured, and electronically tagged them. The electronic tags, called PIT tags (Passive Integrated Transponder), are about the size of a pellet one feeds guinea pigs. Because they are not battery powered, they are lightweight.

(continued on page 2)



Mouth of the Hurricane River. Photo courtesy of T. Breiby.

In this issue...

On the Fly	3
From the Tributaries	4
In the Spotlight	7

Top photo: Lake Superior Minnesota. Photo courtesy of USDA Forest Service, Superior National Forest.

Pictured Rocks National Lakeshore (cont.)

Each is coded with a unique number which is recorded as it is implanted. The number is scanned much like grocery items are scanned in the check-out line. Whenever a PIT tagged fish swims by an antenna near the mouths of three streams, data loggers record the movement and time. These streamside antennae and data loggers are powered by marine batteries that are charged, in the more remote areas, by solar panels. Thus, movements of individual coasters are recorded as they leave the stream for Lake Superior and return.

Coasting behavior of brook trout is not well understood but current advances in electronic monitoring are providing opportunities for understanding brook trout adaptability. NMU student researchers at Pictured Rocks National Lakeshore have PIT tagged resident brook trout in addition to hatchery-raised coaster brook trout from the Tobin Harbor strain. Preliminary evidence suggests that migratory behavior may occur among brook trout that never reach trophy size. This information is guiding management of our native fish species at the park.

Pictured Rocks Release Photo Tour



Release crew. Photo courtesy of T. Breiby.



A coho brook trout squirms as it is measured and weighed by Northern Michigan University students prior to release into the Hurricane River. Photo courtesy of Aaron Peterson Photography (www.aaronpeterson.net).



PIT tags. Photo courtesy of Dr. Jill Leonard.



Implanting yearling with PIT tag. Photo courtesy of T. Breiby.



Todd Breiby preparing to release yearlings. Photo Courtesy of Aaron Peterson Photography (www.aaronpeterson.net).



Fred Waara Chapter of Trout Unlimited President Doug Miller empties a bucket of coho brook trout into the Hurricane River. Photo courtesy of Aaron Peterson Photography (www.aaronpeterson.net).



NMU graduate students releasing tagged yearlings at the mouth of the Hurricane River. Photo courtesy of T. Breiby.

On the Fly

Coaster Brook Trout Rehabilitation Science Workshop

by Jeff Schuldt, University of Wisconsin Extension

The scientific foundations of coaster brook trout rehabilitation were discussed and debated during a Coaster Brook Trout Rehabilitation Science Workshop held at the University of Minnesota Forestry Station on October 16-18, 2003. Thirty-nine fisheries professionals from across North America gathered to review recent coaster brook trout research findings and make suggestions for future coaster brook trout rehabilitation efforts.

The Great Lakes Fisheries Commission prepared and published "A Brook Trout Rehabilitation Plan for Lake Superior" in 1998. This document formed a general framework for brook trout rehabilitation efforts by management agencies in Lake Superior and identified numerous research needs. The 2003 Coaster Brook Trout Rehabilitation Science Workshop represented an opportunity to assess ongoing rehabilitation efforts and current research results.

The bulk of the workshop consisted of participants working in teams to address one of five important topics associated with coaster

brook trout rehabilitation efforts in Lake Superior: 1) coaster genetics, 2) stream habitat requirements, 3) lake habitat requirements, 4) population dynamics, 5) management techniques and perspectives. Each team began assembling a manuscript that synthesizes all of the available scientific information pertaining to a topic, identifies critical research needs, and provides Lake Superior wide management suggestions. Topic papers will be presented during a Coaster Brook Trout Rehabilitation Symposium at the American Fisheries Society Annual Meeting in Madison, WI on August 23-26, 2004. The proceedings of Coaster Brook Trout Rehabilitation Symposium will be published by the American Fisheries Society.

Information gathered during the workshop will also be presented during a series of regional meetings designed for the general public. The first public Coaster Brook Trout Science meeting will be held in Madison, WI on August 24, 2004, with future meetings planned for the Upper Peninsula of Michigan; Ashland, WI; Duluth, MN and Superior, WI; Grand Portage, MN;

Thunder Bay, ON; Nipigon, ON.

The Coaster Brook Trout Rehabilitation Science Workshop was organized and conducted by Jeff Schuldt (Co-chair; University of Wisconsin Extension/University of Wisconsin - Superior), Ed Iwachewski (Co-chair; Ontario Ministry of Natural Resources), Ken Cullis (Ontario Ministry of Natural Resources), Casey Huckins (Michigan Technological University), Martin Jennings (Wisconsin Department of Natural Resources), Rob Mackereth (Ontario Ministry of Natural Resources), Don Schreiner (Minnesota Department of Natural Resources), and Chris Wilson (Ontario Ministry of Natural Resources).

Funding for the workshop was provided by the Great Lakes Fishery Commission, Minnesota Sea Grant, Ontario Ministry of Natural Resources, Trout Unlimited and the University of Wisconsin Extension. Trout Unlimited's funding was graciously provided through a grant from the EPA Great Lakes National Program Office.

(continued on page 7)

Listed on the following three pages are the presentations and posters being presented during the Coaster Brook Trout Symposium at the AFS National Meeting this August.

From the Tributaries

American Fisheries Society National Meeting

Madison, Wisconsin

August 23rd - 26th, 2004

Coaster Brook Trout Symposium

August 25th-26th, 2004

Wednesday, August 25th: 1st Half Day (oral presentations)

Moderator: Martin Jennings, Wisconsin Department of Natural Resources

Mark Ridgeway, keynote address. A roadmap for coasters: landscapes, life histories and the conservation of brook trout.

Wilson, C., W. Stott, L. Miller, S. D'Amelio, and M. Jennings. Conservation genetics of Lake Superior brook trout: issues, questions, and directions.

Fraser, D. and L. Bernatchez. Applying evolutionary theory to the conservation of lake migratory brook trout: lessons from the 'pre-exploitation era' in northern Quebec populations.

Heath, D., S. Jamieson, I. Staalak, C. Bettles, and M. Docker. Population genetics of sympatric migratory and resident life history rainbow trout (*Oncorhynchus mykiss*) in British Columbia.

Scribner, K., C. Huckins, and E. Baker. Metapopulation structure and the influence of stocking on resident and migratory brook trout in coastal tributaries of southern Lake Superior.

D'Amelio, S. and C. Wilson. Metapopulation structure among source populations for coaster book trout in Nipigon Bay.

Stott, W., L. Newman, E. Baker, and G. Smith. Are splake reproducing in Lake Superior?

Sloss, B., M. Jennings, and D. Pratt. Genetic characteristics of brook trout in Lake Superior South Shore streams.

Mackereth, R., A. Carlson, J. Imhof, S. Moore, and C. Richards. Stream habitat of Lake Superior coaster brook trout: a multi-scale review of features critical to protection and enhancement.

Wednesday, August 25th: 2nd Half Day (oral presentations)

Moderator: Laura Hewitt, Trout Unlimited

Smokorowski, K. and K. Murchie. Does flow change elicit a predictable response from brook trout? An examination of relative activity in response to flow in a regulated and an unregulated river.

Wednesday, August 25th: 2nd Half Day (continued)

Carlson, A., S. Moore, C. Huckins, and C. Richards. Basin-wide habitat associations of young-of-year brook trout.

MacIntosh, K. and R. Mackereth. Seasonal patterns of tributary stream use by coaster brook trout in Nipigon Bay, Lake Superior.

Schuldt, J., L. Newman, R. Swainson, O. Gorman, and M. Chase. The role of lake habitat in coaster brook trout rehabilitation.

Mucha, J. and R. Mackereth. Habitat use, movement patterns and home ranges of coaster brook trout in Nipigon Bay, Lake Superior.

Gorman, O., S. Moore, H. Quinlan, and A. Carlson. Habitat associations of coaster brook trout in Isle Royale, Lake Superior.

Sandberg, J., J. Schuldt, and L. Johnson. Macrofaunal communities of nearshore habitats in eastern Nipigon Bay, Lake Superior.

Moore, S., C. Richards, L. Johnson, O. Gorman, and H. Quinlan. Brook trout landscapes, a fish community perspective of Lake Superior brook trout populations.

Huckins, C., E. Baker, K. Fausch, and J. Leonard. Ecology, life history and rehabilitation of Lake Superior coaster brook trout.

Stimmell, S. and J. Leonard. Using TIRFID to monitor migratory activity of brook trout (*Salvelinus fontinalis*) in three rivers within Pictured Rocks National Lakeshore, MI.

Thursday, August 26th: 3rd Half Day (oral presentations)

Moderator: Ed Iwachewski, Ontario Ministry of Natural Resources

Huckins, C., D. Kramer, and E. Baker. Ecology and status of a remnant south shore population of Lake Superior coaster brook trout.

Sreenivasan, A. and J. Leonard. Comparison of growth parameters between Tobin Harbor “coaster” strain and stream-resident brook trout.

Schreiner, D., K. Cullis, M. Donofrio, G. Fischer, and L. Hewitt Overview of management issues affecting rehabilitation of coaster brook trout.

Pratt, D., R. Swainson, and M. Peramaki. History of coaster brook trout fisheries in Lake Superior.

Quinlan, H., G. Miller, L. Newman, O. Gorman, and S. Moore. Status and population structure of coaster brook trout at Isle Royale National Park, Michigan.



Thursday, August 26th: 3rd Half Day (continued)

Mumford, K., L. Hewitt, and G. Fischer. Human dimensions considerations for coaster brook trout rehabilitation.

Gunderson, J., J. Schuldt, L. Hewitt, S. D'Amelio, J. Imhoff, and T. Breiby. Keeping the ball rolling: outreach to engage and educate user groups about Lake Superior coaster brook trout rehabilitation.

Panel Discussion:

Wrap-up and panel discussion: Leader—Ed Iwachewski

Posters

D'Amelio, S. and J. Imhof. Identification of key habitat features associated with coaster brook trout production.

D'Amelio, S., J. Mucha, R. Mackereth, and C. Wilson. Tracking the origins of coaster brook trout: combining telemetry and genetic profiles to determine source populations.

Fraser, D. and L. Bernatchez. Migratory brook charr and metapopulations: an evolutionary perspective for conservation.

Jennings, M., et al. Monitoring salmonid abundance in Lake Superior South Shore streams: implications for brook trout rehabilitation.

MacIntosh, K. and R. Mackereth. Habitat use by brook trout in tributary streams of Nipigon Bay, Lake Superior, still used by coaster brook trout.

Ostazeski, J. and D. Schreiner. Use of thermal infrared imaging to identify groundwater resources for coaster brook trout along the Minnesota shoreline of Lake Superior.

Quinlan, H. and G. Fisher. Objectives, strategies, and progress of ongoing coaster brook trout stocking projects in the Lake Superior basin.

Stott, W., D. Schreiner, H. Quinlan, and M.K. Burnham-Curtis. Mitochondrial and microsatellite DNA variation among brook trout populations from Lake Superior.

Wilson, C. and S. D'Amelio. Genetics of Lake Nipigon brook trout.

Wilson, C. et al. Standardization of genetic markers and databases for coaster brook trout in Lake Superior

In the Spotlight

One of Lee Newman's first assignments as a Fishery Biologist with the U.S. Fish and Wildlife Service in 1989 was to provide technical fisheries assistance to the Grand Portage Band of Lake Superior Chippewa. During this time Lee found that streams at Grand Portage had at one time supported coaster populations until about 1950.

So in 1992, eager to try and reintroduce coasters, Grand Portage and the USFWS began stocking early life stage Nipigon strain fish that were provided (along with much welcome support and advice) by Ontario Ministry of Natural Resources colleagues Bob Hamilton and Rob Swainson. Grand Portage did a tremendous job of outreach to the community that generated support and protection from harvest so that by 1995 adult coasters were found returning to streams where they had originally been stocked and in 1997 fish were confirmed to be reproducing.

Since then, Lee has continued to work on a variety of research and management projects that have included researching coaster movements and habitat use at Grand Portage and Isle



Royale and developing a project with the Michigan DNR to evaluate the status of native, wild coaster populations and their habitats in the Salmon Trout River and at Isle Royale. Lee also worked with the National Park Service and Michigan DNR to develop and implement a plan to reintroduce coasters into Pictured Rocks National Lakeshore.

Lee's efforts have continued off the field by working with the Lake Superior Technical Committee from 1994-2003, by chairing the Brook Trout in Lake Superior Sub-committee and by co-editing the reports, Status of Brook Trout in Lake Superior (1997) and A Brook Trout Rehabilitation Plan for Lake Superior (2003). While with the USFWS Lee has played an integral and diverse role over the years in working to rehabilitate the coaster in Lake Superior.

Science Workshop cont.

Participants in the workshop represented: Colorado State University Cornell University, Great Lakes Science Center, Lakehead University, Lake Superior Chippewa, Michigan Department of Natural Resources, Michigan Technological University, Minnesota Department of Natural Resources, Minnesota Sea Grant, Northern Michigan University, Ontario Ministry of Natural Resources, Trout Unlimited, Trout Unlimited Canada, University of Georgia, University of Minnesota, University of Wisconsin Extension, University of Wisconsin - Superior, University of Wyoming, U.S. Fish and Wildlife Service, U.S. Geological Survey, and Wisconsin Department of Natural Resources.

About this newsletter

This newsletter is a product of Trout Unlimited, Trout Unlimited Canada, Minnesota Sea Grant, and the University of Wisconsin Extension.

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